MEMORANDUM

FROM: Susan Roddy

TO: Gary Miller

SUBJECT: Review of PRP Responses to Comments an Final SLERA, for the Gulfco Site

DATE: April 13, 2010

The above named documents, the resubmitted revised Table 19, and the appendix with the Jarvinen and Ankley evaluation have been reviewed by the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ), with comments as follows:

1. Table of Contents: the page numbering of this table is off beginning with Section 2.2 and shall be corrected.

2. Page xii, Executive Summary, 2nd paragraph and P. 48, Section 5.2.4 Ponds: the statements regarding the HQ for the sandpiper shall be modified. The current value of 1.2 appears to have been derived from only the water ingestion and the water-to-worm components of total intake. Other components (e.g., incidental sediment ingestion, sediment-to-food) were not included. Also see the related Appendix I comments.

3. The text results and conclusions (and SDMPs) shall specifically explain and be inclusive of evaluations used for protectiveness for receptor entries from Table 19 for FISH AND SHELLFISH- fiddler crab and killifish, and CARNIVOROUS FISH-black drum and spotted seatrout. (i.e., using water quality standards and criteria in addition to the Jarvinen and Ankley evaluation for surface water exposure for fish [pages 32-35 and 46-49], and using ERLs for sediment exposure for the fiddler crab. There shall be provided cross-references in the text to appended tables for the surface water quality standards or criteria where the evaluations were done as well as cross-references to the new Jarvinen and Ankley appended evaluation as well as to ERL comparisons that apply to the fiddler crabs.

4. The executive summary shall include in the text bioaccumulative contaminants that were evaluated by media.

5. Pages 15 and 16: The third sentence on page 15 (beginning with the word "Inspection") in the second complete paragraph shall be removed. The third sentence (beginning with the word "Hot") in the top incomplete paragraph shall be removed.

6. Page 23: Instead of stating that birds are less important than mammals because birds live in less intimate contact, it shall be stated that for this reason birds are thought to be less susceptible to COPEC exposure than mammals.

7. Pages 30 and 49: Where it is stated that there are potential adverse impacts to sedentary biota in sediment and aquatic life communities (except fish) in surface water, the words "(except fish)" shall be removed. Even though fish were not flagged from the Jarvinen and Ankley assessment, there were exceedances of water quality criteria or standards or benchmarks (i.e., acrolein and dissolved copper in North wetland surface water, and dissolved silver in pond surface water) that address fish as well as other aquatic biota. Fish shall thus be included in language in the SDMP at the end of the SLERA for receptors warranting further evaluation in the BERA.

8. Page 41: Cross-reference shall be provided to Tables 26-28.

9. Section 5, Summary and Conclusions of the SLERA: A summary and conclusion is missing and shall be provided for the sedentary soil invertebrates. Mention shall be made that because of the SLERA indicating potential adverse risk, further assessment is warranted. Soil invertebrates are correctly listed as a SDMP.

10. Page 46: Regarding the summary and conclusion for the Intracoastal Waterway, where bioaccumulative contaminants are mentioned in the third paragraph, they shall be identified.

11. Page 46: It is stated in the fourth paragraph that "Adverse impacts from COPECs in surface water are not anticipated." This sentence shall be deleted.

12. Page 49: Regarding the SDMP for sedentary sediment biota in the North wetland, ICW, and Pond, it shall be mentioned that there is potential for localized adverse ecological effects to sedentary biota communities in sediment from the COPECS that exceeded ERLs [and midpoints of ERL/ERM], and a more thorough assessment is warranted (i.e., continue to Step 3 of EPA's ERAGS process).

13. Page 49: In the last paragraph, regarding the SDMP for possible risk from lead for the avian carnivore in the small pond, it shall be stated that a more thorough assessment is warranted (i.e., continue on to Step 3 of EPA's ERAGS process). Lead shall appear in Table 21 for the pond. Analogously, in the last paragraph, regarding the possible risk from direct contact toxicity to aquatic organisms from acrolein and dissolved copper in the surface water of the North wetlands, and dissolved silver in the surface water of the pond, the text shall state that a more thorough assessment is warranted (i.e., continue on to Step 3 of EPA's ERAGS process).

14. The 95 UCL value is acceptable to use to calculate sediment ingestion for the avian carnivores. The 95 UCL is acceptable to calculate fish concentrations which are mobile. However, maximum concentration values shall be used to calculate crab and

worm concentrations since they are sedentary (this shall also be reflected in the revised Table 19).

15. Table 21 has selenium listed in the ICW surface water, but it is missing from the bottom of Table F-4 and F-5; since selenium is a bioaccumulative contaminant for which sandpiper and green heron evaluations were done in F-4 and R-5, selenium shall be included.

16. Regarding the Tables in the SLERA, a Table is missing and shall be included for surface soil background.

17. For clarification, a Table shall be provided transitioning between Tables 21 and 24-25 to list contaminants with a column for the rationale for why some of the contaminants were eliminated for further evaluation.

18. Table 25 shall be labeled to distinguish between sediment and surface water results.

19. For Table 26 (Compounds Lacking Soil Toxicity Reference Values), contaminants lacking soil TRVs for reptiles shall be listed.

20. The title of Table 28 (Compounds Lacking Sediment Toxicity Reference Values) is incorrect given the column is for surface water quality standards; this shall be corrected.

21. The Figures shall state the receptor for which the values apply (to match the text).

22. Cross-referencing shall be provided between the Tables following the text that were used in the appended Tables, and vice versa. More specifically, the maximum values for soil invertebrates and benthic organisms used in the appended tables shall be specifically cross-referenced back as a footnote to the specific Tables following the text for each instance and vice versa.

23. For the sedentary receptor evaluations, the number of contaminants appearing with maximum values in Tables following the text is greater (even if accounting for those lacking ecotoxicity values) than those in the appended tables; a transparent explanation shall be provided regarding a more exact matching of entries for contaminants between the tables.

24. Regarding Appendix A, the ProUCL model was run with the assumption that data had non-parametric or normal statistical distributions, but ignored the consideration of other distributions (e.g., lognormal or gamma), which the model output directed the user to examine. For example, the model output for background barium in surface soil states "*Data follow Appr. Gamma Distribution (0.05); May want to try Gamma UCLs*". Instead, the SLERA used the nonparametric 97.5 % Chebyshev (Mean, Sd) Upper Confidence Limits of the Means (UCLM) of 902 mg/kg. The ProUCL Version 4.00.04

run for the same data duplicated the nonparametric 97.5 % Chebyshev (Mean, Sd) UCL of 902 mg/kg. However, as noted as part of this output, it states "*Potential UCL to Use: Use 95% Approximate Gamma UCL*" at 501 mg/kg. Based on this comparison, when the appropriate distribution is applied, the UCL should have been 501 mg/kg, and not 902 mg/kg. It is expected that some of the data in all of the ProUCL model runs are actually nonparametric, in which case the proper UCLM has been chosen. However, it is likely that many of UCLMs based on the ProUCL runs shown in Appendix A may be in error because they are based on the wrong distribution. The UCLMs shall be revised as necessary to use the appropriate distribution based on the Pro UCL model. Any changes in results, conclusions, SDMPs, and further evaluation shall be identified.

25. Regarding the appended evaluations, where there were contaminants inappropriately screened out and eliminated from evaluation for the sandpiper and green heron appended tables based on benthic ERL comparisons, these contaminants shall be reinstated for evaluation for the aquatic sandpiper and green heron, and results and conclusions revised.

26. Tables F-3, G-3, H-3, and I-3 shall be identified as comparisons to ERLs.

27. Tables F-1, H-1, and I-1 shall state that the values for the surface water metal contaminants are total concentrations.

28. Regarding the appended evaluations for intracoastal water surface water intake, wetland surface water intake, and pond surface water intake, corrections shall be made where evaluation of selenium (for the sandpiper and green heron) is to be included. Specifically, selenium is missing off the bottom of Table F-1 (and according to Table 21, selenium should be on the bottom of Table F-1). Plus selenium is not, and shall be included in the surface water intake evaluation for the sandpiper and green heron in Tables F-4 and F-5. This applies for the other aquatic media appended evaluations for the wildlife, which according to Table 21 shall include selenium.

29. It is unclear where Table 14 (ICW Surface Water-dissolved metals) is used in the Appended Tables. Footnoting shall be included both on the Table following the text and in the appropriate Appended Table to track where these values were used.

30. Tables C-1, D-1, E-1, F-1, G-1, H-1, and I-1: The EPC column shall be footnoted that the values are based on the latest version done for the ProUCL evaluation. Any corrections in accordance with the ProUCL comments above shall be incorporated.

31. For the sandpiper, sediment ingestion, sediment to worm, and sediment to crab estimations shall be done and included in the intake and HQ evaluations for lead (so that the evaluation does not just include water ingestion and water to worm, and the zero for the water to crab shall be revisited). And, the other contaminants shall be double-checked that these sediment pathways were included as well for both the sandpiper and green heron.

32. Additional contaminants from Table 9 shall be added to the evaluation for the aquatic wildlife (sandpiper and green heron), those separate from the ERL evaluation for benthic receptors since ERLs are not appropriate screening values for wildlife. The understanding is that there will be 24 additional contaminants.

33. The hierarchy for sediment to aquatic invertebrate factors shall be in the following order: (1) empirical, (2) half the detection limit, (3) the max value from the Calcasieu Remedial Investigation, (4) the Combustion guidance values, and (5) a default of one if none of the other factors are available.

34. Combustion guidance values shall be used for analytes not empirically measured in crab, but where the contaminant was measured in surface water and sediment (this meshes with the hierarchy comment).

35. Table I-4 shall be labeled to identify the split between the sediment values at the top and the surface water values at the bottom.

36. Table I-4: the list of chemicals appearing in the sediment concentration portion of this table shall correspond to the list appearing in Table 9. Currently, many chemicals that were detected in at least 1 of 8 samples in Table 9 do not appear in Table I-4. The remaining Appendix I comments are based on evaluating the eliminated chemicals and associated exposure pathways.

37. Tables I-4 and I-5: in addition to the incidental sediment ingestion component, sediment-to-worm and sediment-to-crab components of the total intake for the sandpiper shall be developed for the missing COPECs, as will the sediment-to-crab component for the green heron. If tissue data is used, there would be no need to assign dietary percentages. Finally, the exposure point concentration (EPC) for the sandpiper/green heron incidental ingestion should be the EPC values from Table 9. However, when determining what the COPEC concentration in the worm and crab is (Table I-8), multiply the maximum sediment concentration by the BSAF as these are sedentary benthic invertebrates.

38. Tables I-4, I-5, and I-8: the values for the crab and worm listed under "Food Ingestion" in Tables I-4 and I-5 do not correspond to the values in Table I-8. If a value appears for both sediment and water in Table I-8 (e.g., sediment-to-worm and water-to-worm for nickel, zinc, HPAH, and Total PAH), only the water value shall appear in Tables I-4 and I-5. In other words, these values shall be combined. Also, only where a COPEC was identified for sediment but not for water in Table I-8 was that value reported in Tables I-4 and I-5.

39. For nickel, zinc, HPAHs, and TPAHs, Table I-4 for total intake shall not be blank; rather, the values to be included shall be for those from the surface water ingestions and surface water to food item estimations from Table I-8.

40. The zeros in the surface water section of Table I-8, including the 24 new contaminants, shall be 1) clarified (to avoid double counting when an actual sediment tissue empirical data point was available, 2) corrected and footnoted to include estimations such that sediment and surface water estimations are combined, 3) replace zeroes with measured or half detection limits or Combustion guidance or default of one.

41. The footnote in Table I-8 (*) shall be corrected to indicate that even though the human health Gulfco SAP did not require sampling of all the contaminants needing evaluation for the ecological risk assessment, there were estimations for these other contaminants.

42. If there is not any empirical tissue data, sediment to worm shall be added to water to worm, and likewise, sediment to crab shall be added to surface water to crab.

43. The revisions in Appendix I shall be used to correct Table 29 in the SLERA as the starting point for the Refinement calculations to be rerun where needed for the Problem Formulation. Revisions for the other appendices, analogous to those for Appendix I, shall be incorporated as appropriate.

44. The Refinement shall be checked for if there was another reason that the HQ for lead for the sandpiper fell below unity besides the accepted use of the average body weights.